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# Differential Ability Patterns: Inuit, Nsenga, Canadian Whites

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In the above title the word "differential" is emphasized--some differences in differences with some attention to why. In a continuing project (MacArthur, 1973) the general question of particular associations between a large number of cognitive variables and a large number of psychosocial variables is being studied, using samples briefly described in Table 1. with its footnote (Canadian Central Eskimos--or Inuit--of Igloolik and Frobisher Bay, Nsenga Africans of Sandwe and Petauke, Northwest Greenland Eskimos of Augpilagtoq, Kraulshavn and Upernavik, and Alberta Whites of Strathcona County; balance by sex, and by subsistence hunting or farming vs. wage-earning except for Whites.) Some of the cognitive measures used are listed in Table 2 and further described in MacArthur, (1973). Psychosocial measures included usual status measures, and also what Bloom (1964) calls environmental process variables.

The very general rationale underlying the project (MacArthur, 1968) views cognitive abilities (or processes if you prefer) as organized in an oblique hierarchy resembling those of Gagné (1962) or Cattell (1963), resulting from interactions of innate predispositions with environmental influences a la Ferguson (1954) or Cole (1971), with local demands strongly influencing what abilities or processes are learned and how they pattern.

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Of the many hypotheses underlying the project, one set should be stated here. Following Witkin (1967)/Dawson (1967)/Berry (1971) theory of psychological differentiation, field-independence measures are expected to be associated with: some spatial-practical abilities, hunting rather than agricultural communities, open rather than closed vistas, permissive but impulse-controlled discipline, and upbringing encouraging initiative and resourcefulness.

## Some Results

### Differential Ability Factor Patterns

Oblique higher-order factor analysis (Hendrickson & White, 1966) of cognitive measures for the Canadian Inuit adolescents (Table 2) indicated three main first-order common factors: (1) a verbal-educational factor (here called v:ed) marked by such tests as Arithmetic and English Vocabulary, (2) a spatial-field-independence factor (here called k:m) marked by such tests as WISC Block Design, Witkin Embedded Figures, and New Guinea Performance Scale Form Assembly, and (3) a factor of inductive-reasoning-from-nonverbal-stimuli (here called i) marked by such tests as Standard Progressive Matrices. As predicted by the rationale behind the study different factor patterns appeared for different ethnic samples and age-levels (e.g. in Table 2 for the Nsenga adolescents i has merged with v:ed, and k:m is not so broadly spatial). But since the above three factors are recognizable for other samples, either with some splitting

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or in some combination, they will be used to structure discussion of cognitive abilities here.

Differential Ability Profiles Relative to Inuit Adolescents

Figure 1 attempts to summarize several central findings of the study. T-score norms based on the Canadian Central Eskimo adolescents were prepared for each of the ability measures, so that in Figure 1 this ethnic sample (heavy line) has a mean of 50 on each of the three groups of ability measures (k:m, i, v:ed). Mean T-scores based on the norms of this reference sample were obtained for each of the other samples on each test. Medians of these mean T-scores, over each of the three groups of ability measures, are shown in Figure 1 for the Greenland, Nsenga, and Alberta adolescents.

In Figure 1 one might first notice that the Greenland Eskimos (dashed line) closely parallel the Central Eskimos in all three groups of abilities. As might be expected on these tests evolved mainly from Euro-American culture the Whites (dotted line) perform highest. But as indicated by the oval at the left, on the spatial-field-independence tasks the Central Canadian and Greenland Eskimos with their hunting background, ecology demanding minute visual discrimination, and upbringing encouraging initiative and resourcefulness, perform at about the same level as that of the Whites. On these k:m tasks the Nsenga (x-ed line) with subsistence farming background, closed vistas, and upbringing encouraging toward conformity and obedience, perform much lower. Hypotheses in this connection from psychological differentiation theory, then, are clearly confirmed.

On the verbal-educational tasks, as indicated by the oval at the right of Figure 1, the three indigenous samples perform similarily, all below the Whites. The inductive-reasoning tasks fall between these two

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extremes. The Nsenga are about the same distance below the Whites on all three factors.

Figure 2, for children of Stated Age 9 to 12 years, remarkably resembles the Figure 1 graph for the adolescents. For the Nsenga children performance on the inductive reasoning tasks (which in factor analysis scattered over three factors) is at about the same level as that on the k:m tasks.

Differential Abilities Relative Age

Within each ethnic sample an inverted U-shaped relation was expected between age and level of ability on tests common to the four age-groups. Table 3 shows, however, that for the Central and Greenland Eskimos on the k:m tasks there were almost no significant differences in means between the adolescents with an average of six years of schooling and middle-aged adults with little schooling (except for one test of difficult format). For the Nsenga the trend was similar but not so clear.

Differential Abilities Relative to Transition

For each age-group of each of the three indigenous samples factor analyses were made of sixteen status variables which might be considered to indicate degree of transition toward technological society. As in the ability domain these variables grouped rather differently from sample to sample, but with discernible pattern. It was hypothesized that the more transitional subjects would do better on all of these essentially Euro-American cognitive tasks. Table 4, using four transition markers in illustration, shows that for the Eskimo adolescents there was a clear trend for the spatial-field-independence group of abilities to be related almost not at all to degree of transition, for the inductive-reasoning abilities to be somewhat related thereto, and for the verbal-educational abilities to be much more related to transition. For the

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Abilities Relative to Sex

On the basis of Eskimo sharing of responsibility between the sexes, and of previous research, no sex differences in the cognitive tasks were hypothesized for the Eskimos. On the basis of previous research (MacArthur, et al, 1964), and of supposed relative pressure on Nsenga males to achieve in "modern" settings, male superiority on all cognitive tasks was predicted for the Nsenga. Some male superiority in spatial tasks was predicted for the Whites. One of the striking findings of this study was almost no sex differences in any of the ability tests for any of the age-groups in any of the ethnic samples. Table 5 is included for its impressive list of near-zeros. Out of 307 point-biserial ability correlations with sex only 13 percent were significant at the .05 level. Exceptions were the adult Greenland sample showing some slight male superiority in spatial-field-independence and inductive-reasoning tasks, and the adolescent female Central Eskimos and Alberta Whites showing some slight superiority in verbal-educational tasks.

The lack of sex differences for the Nsenga African samples is noteworthy, since male superiority in these cognitive tasks had been expected. The explanation would seem to be offered by Table 6, in which for these Nsenga samples at this time there were almost no sex differences in status or environmental process variables, (including occupational plans in terms of Blishen occupational levels, school achievement motivation, and parental aspirations of child's education).

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Communalities from the factor analyses suggest minimum bounds for reliabilities of the cognitive measures. For sample 12 these communalities ranged from .81 to .99 with median of .97, for sample 22 from

.60 to .89 with median .71 (MacArthur, 1974). Reliabilities can be considered to be higher than these communalities.

This finding strongly suggests that on this broad battery of cognitive tasks such sex differences as do occur are not likely of biological origin, but are related to circumstances in the upbringing of a particular age-group in a particular setting at a particular time.

## Two Points in Discussion

### Practical Implications of Relative Strengths, for Education

In terms of practical implications for Eskimo peoples in formal educational settings, their relative strengths in spatial-field-independence abilities suggest: (1) clear distinction between media or methods of instruction, and subjects or content of instruction, (2) much more emphasis than at present on nonverbal stimuli and figural abilities as media of instruction--more use of their demonstrated abilities as means of two-way communication, (3) content of instruction is a value matter of course, best decided by the Eskimos directly concerned, but this writer's suggestion is development of both figural and verbal abilities as aims for subjects of instruction.

### Construct Validity of Measures Across Cultures

This study, and very many others, have shown many instances of the same stimulus materials assessing rather different processes in different ethnic samples, and even at different age-levels of the same ethnic group; eg. the well known Progressive Matrices, for the Eskimo samples seemed to tap inductive reasoning from nonverbal stimuli, but for the adolescent Nsenga it loaded on the v:ed factor while for the younger Nesenga the sub-tests scattered over three factors. However, it is surprising how many of us continue to give one or two tests for a particular construct, across several cultures, not questioning

our certainty as to what the test is measuring.

Two approaches may be helpful here. Use of a number of tests and multivariate analyses may alleviate the difficulty a little, in a lifting-by-bootstraps way, by helping us observe how various tests cluster for a particular group of subjects. Cronbach and Drenth (1972, p. 479) have suggested some stringent criteria in this connection (which could seldom be met in practice), as does a paper at this conference by Poortinga (1974).

A second approach, advocated by Cole (1971) and by Serpell (1972) involves starting with a Euro-American contruct but kept in mind only at a very general level, and searching for exemplars of that construct manifested on the local scene. Such local-exemplars approach may have the added advantage of revealing additional phenomena not readily observable in Euro-American culture.

Rather than opposing each other, the multivariate and local-exemplar approaches to construct validity can be used to complement each other, along of course with observation and interpretation by truly indigenous psychologists as such psychologists become more plentiful.

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# H A N D O U T

for

# DIFFERENTIAL ABILITY PATTERNS: INUIT, NSENGA, CANADIAN WHITES

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~~social environments? and (b) What particular abilities are related to what particular environmental influences?~~ Table 1 summarizes some descriptive data for the sixteen samples.

TABLE 1

SOME DESCRIPTIVE DATA FOR 16 SAMPLES – N's, MEANS, AND TEST BATTERIES*

| | Sample No. | Age 9 to 12 | Sample No. | Age 13 to 16 | Sample No. | Age 17 to 26 | Sample No. | Age 27 to 40 | Total | Year Field Work |
|---|---|---|---|---|---|---|---|---|---|---|
| *Number of Cases* | | | | | | | | | | |
| Central Eskimos | 11 | 61 | 12 | 62 | 13 | 29 | 14 | 25 | 177 | 1969 |
| Nsenga Africans | 21 | 65 | 22 | 65 | 23 | 31 | 24 | 31 | 192 | 1970 |
| Greenland Eskimos | 31 | 65 | 32 | 64 | 33 | 23 | 34 | 24 | 176 | 1971 |
| Alberta Whites | 41 | 70 | 42 | 64 | 43 | 36 | 44 | 36 | 206 | 1972 |
| Total | | 261 | | 255 | | 119 | | 116 | 751 | |
| *Stated Age* | 11 | 10-5 | 12 | 14-4 | 13 | 21-0 | 14 | 33-7 | | |
| | 21 | 10-4 | 22 | 14-4 | 23 | 20-0 | 24 | 32-11 | | |
| | 31 | 10-9 | 32 | 14-0 | 33 | 20-11 | 34 | 35-3 | | |
| | 41 | 10-4 | 42 | 14-4 | 43 | | 44 | | | |
| *Years in School* | 11 | 3.3 | 12 | 6.0 | 13 | 5,3 | 14 | 0.6 | | |
| | 21 | 3.1 | 22 | 6.4 | 23 | 6.6 | 24 | 2.9 | | |
| | 31 | 3.7 | 32 | 6.8 | 33 | 7.0 | 34 | 7.0 | | |
| | 41 | 4.4 | 42 | 8.5 | 43 | | 44 | | | |
| *Grade* | 11 | 2.2 | 12 | 4.6 | | | | | | |
| | 21 | 3.6 | 22 | 6.4 | | | | | | |
| | 31 | 3.0 | 32 | 6.0 | | | | | | |
| | 41 | 4.2 | 42 | 8.5 | | | | | | |
| *Occupation* (Blishen 1967) | 11 | 28.4 | 12 | 29.6 | 13 | 31.9 | 14 | 30.4 | | |
| | 21 | 37.4 | 22 | 33.7 | 23 | 38.0 | 24 | 30.9 | | |
| | 31 | 31.5 | 32 | 31.1 | 33 | 28.0 | 34 | 27.5 | | |
| | 41 | 39.3 | 42 | 43.4 | 43 | | 44 | | | |
| *Test Batteries* | I, II, III | | I, II | | I | | I | | | |

* Within each sample balance by sex, and (except for Whites) by less/more transitional orientation. Data for samples 43, 44 not yet available.

Cognitive measures used were in three batteries: Battery I administered to all subjects included eleven measures selected from those recommended in I.B.P. Handbook 10 (Biesheuvel, 1969, which see for additional description of them); Battery II for pupils with at least two years of schooling included another thirteen tests, mostly adapted from those used by Vernon (1969); Battery III for younger pupils included twenty mostly Piaget-type tasks. The twenty-nine psychosocial variables included the usual status measures, and also a number of what Bloom (1964) calls environmental process variables. ~~Brief description of the main measures used in the overall project follows.~~



TABLE 2

PART OF FACTOR PATTERNS OF ABILITIES FOR ADOLESCENT CENTRAL ESKIMO SAMPLE 12 AND NSENGA AFRICANS SAMPLE 22. (OBLIQUE PROMAX-COEFFICIENTS BELOW .35 OMITTED)

| Tests | Primary Factor Pattern First Order: Eskimo 3 of 8 Factors 1 | 2 | 3 | Nsenga 2 of 7 Factors 1 | 2 | Third Order Esk. 1 | Third Order Nsen. 1 | Unrotated First Principal Esk. 1 | Unrotated First Principal Nsen 1 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Block Design WISC | | .88 | | | .85 | .75 | .56 | .72 | .61 |
| 2. Emb. Fig. Witkin | | .95 | | | .79 | .66 | .64 | .62 | .72 |
| 3. Emb. Fig. AID 1 | | .70 | | | .91 | .59 | .41 | .68 | .49 |
| 4. 2 | | .81 | | | .76 | .62 | .55 | .73 | .65 |
| 5. Emb. Fig. Vernon | | .38 | .57 | | .70 | .64 | .73 | .72 | .72 |
| 6. Form Assembly NGPS | | .71 | | .44 | | .63 | .61 | .45 | .61 |
| 7. Passalong NGPS | | .68 | | | | .69 | .39 | .56 | .35 |
| 8. Draw Man Witkin | | .36 | | | .46 | .39 | .45 | | .64 |
| 9. Progr. Matrices A | | | .86 | | .91 | .56 | .61 | .43 | .51 |
| 10. B | | | .82 | .40 | | .61 | .77 | .55 | .66 |
| 11. C | | | .87 | .92 | | .69 | .65 | .70 | .73 |
| 12. D | | | .89 | .90 | | .66 | .73 | .66 | .80 |
| 13. E | | | .43 | .94 | | .50 | .64 | .63 | .73 |
| 14. SCRIT Scale 2 | | | .64 | .43 | | .72 | .62 | .77 | .65 |
| 15. MAC 2 | | | .61 | .47 | | .69 | .68 | .65 | .76 |
| 16. Lorge-Th. NV3 1 | | .60 | | | | .58 | .59 | .67 | .57 |
| 17. 2 | | .49 | .40 | .62 | | .71 | .62 | .79 | .73 |
| 18. 3 | .48 | | | .55 | | .65 | .76 | .82 | .77 |
| 19. Memory Designs Benton | | | | — | — | .47 | — | .55 | — |
| 20. Shipley Abstraction | .52 | | | .82 | | .79 | .76 | .91 | .91 |
| 21. English Vocab. Oral | .93 | | | .64 | | .37 | .65 | .61 | .79 |
| 22. Arithmetic Computation | .86 | | | .86 | | .67 | .72 | .85 | .88 |
| 23. Problems | .70 | | | .88 | | .72 | .71 | .83 | .87 |
| 24. Grade in School | 1.02 | | | 1.03 | | .60 | .63 | .80 | .84 |
| 25. Eng. Rdg & Usage | .99 | | | 1.00 | | .66 | .68 | .84 | .90 |
| 26. Eng. Vocab. Written | 1.00 | | | .87 | | .70 | .61 | .81 | .83 |
| 27. Otis Beta | .94 | | | .67 | | .69 | .49 | .85 | .68 |
| 28. Spelling | .86 | | | .93 | | .73 | .62 | .84 | .86 |
| 29. Information Lrng. | .79 | | | .95 | | .65 | .66 | .74 | .89 |
| 30. Word Learning | | | | .50 | | .63 | .40 | .58 | .66 |
| 31. Illusions M-Lyer | | | | | | | | | |
| 32. Sander | | | | | | | | | |
| 33. T | | | | | | —.38 | | | |
| 34. L | | | | | | —.43 | | | |
| 35. Visual Acuity | | | | | | | | | |
| Prop. Total Variance | .25 | .15 | .14 | .36 | .14 | .37 | .34 | .43 | .45 |
| Factor Correlations | 1 | 2 | 3 | 1 | 2 | | | | |
| 1 | — | .61 | .57 | — | .71 | | | | |
| 2 | | — | .62 | | — | | | | |
| 3 | | | — | | | | | | |

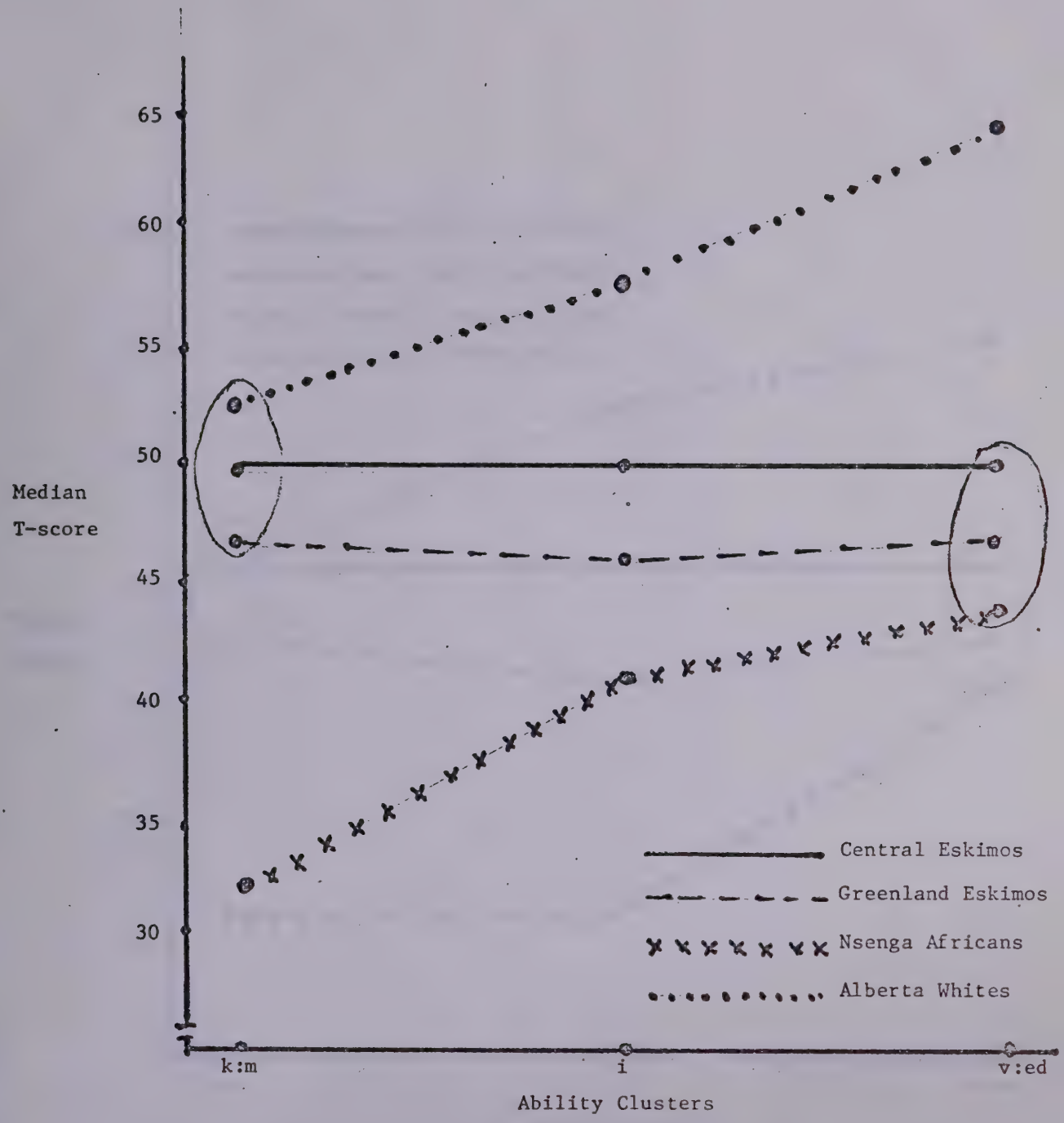


Fig. 1. Medians, over clusters of ability measures, of mean T-scores for adolescent ethnic groups.
(Based on Central Eskimo adolescents as reference group.)

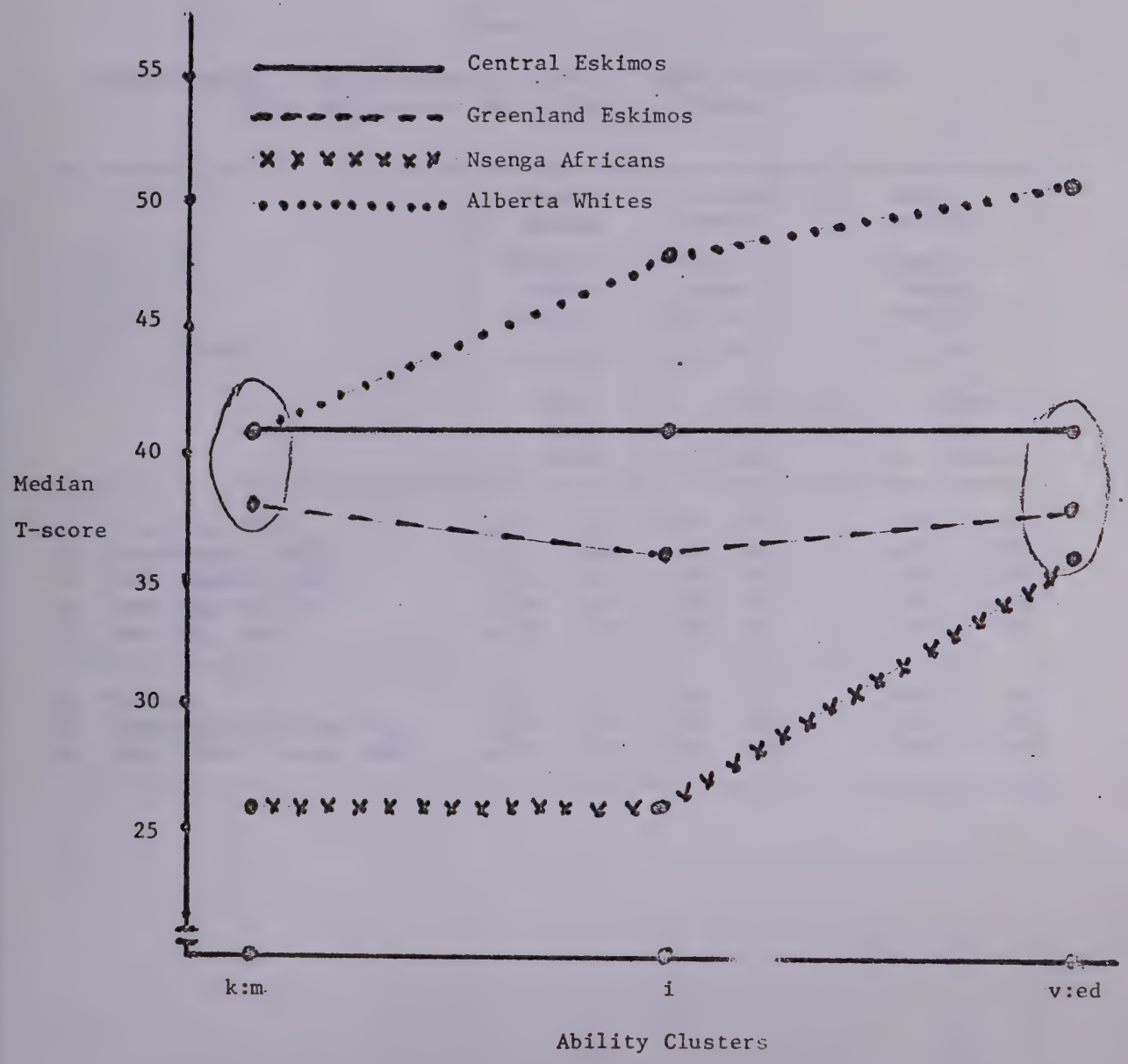


Fig. 2. Medians, over clusters of ability measures, of mean T-scores for child ethnic groups.
(Based on Central Eskimo adolescents as reference group.)

Table 3

Significance of Differences of Means on Common Ability Tests, Young Adolescents vs. Middle-Aged Adults

| Test | Central Eskimos Sample 12 minus Sample 14 d.f.85 | | Greenland Eskimos Sample 32 minus Sample 34 d.f.86 | | Nsenga Africans Sample 22 minus Sample 24 d.f.94 | |
|---|---|---|---|---|---|---|
| | t | Prob. less than | t | Prob. less than | t | Prob. less than |
| 1. Passalong NGPS | -1.27 | .30 | -2.35 | .05 | .14 | .90 |
| 2. Block Design WISC | 1.16 | .30 | - .57 | .60 | 1.48 | .20 |
| 3. Form Assembly NGPS | 1.79 | .10 | .18 | .90 | .39 | .70 |
| 4. Emb. Fig. Witkin | 2.16 | .05 | 1.21 | .30 | 4.20 | .001 |
| 5. Emb. Fig. AID | 8.23 | .001 | 2.70 | .01 | 5.75 | .001 |
| 6. MAC 2 | 3.21 | .01 | 2.55 | .02 | 8.18 | .001 |
| 7. Progress. Matrices Total | 5.70 | .001 | 5.83 | .001 | 8.13 | .001 |
| 8. Eng. (Dan.) Vocab. Oral | 5.77 | .001 | 3.89 | .001 | 5.69 | .001 |

Table 4

Correlations of Ability Tests with Some Transition Markers for Adolescent Eskimos (Age 13 to 16)

| | Wages vs. Land (Head) | | Appliance Ownership (Home) | | Eng.(Dan.) Use with Friends | | Time in School (Self) | |
|---|---|---|---|---|---|---|---|---|
| Sample | 12 | 32 | 12 | 32 | 12 | 32 | 12 | 32 |
| 1. Draw Man Witkin | 01 | 11 | -15 | 12 | 10 | 16 | -01 | 12 |
| 2. Emb. Fig. AID 1 | 03 | 00 | 17 | 01 | 18 | 07 | 14 | 24 |
| 3. 2 | 06 | 13 | 19 | 19 | 13 | 28* | 32* | 32* |
| 4. Block Design WISC | -06 | 23 | 00 | 38* | 12 | 32* | 14 | 50* |
| 5. Memory Designs Benton | 05 | 16 | 20 | 22 | 13 | 31* | 26* | 28* |
| 6. Emb. Fig. Vernon | -03 | 18 | 07 | 21 | 14 | 21 | 20 | 30* |
| 7. Form Assembly NGPS | -14 | 10 | -01 | 22 | 09 | -21 | 06 | 33* |
| 8. Passalong NGPS | -05 | -02 | -10 | 03 | 11 | 25* | 07 | 23 |
| 9. Emb. Fig. Witkin | 11 | 11 | -09 | 12 | 15 | 33* | 16 | 38* |
| 10. Progress. Matrices A | -04 | 26* | -05 | 24* | 13 | 27* | 09 | 28* |
| 11. B | 34* | 32* | 16 | 23 | 27* | 36* | 29* | 35* |
| 12. C | 21 | 43* | 13 | 45* | 28* | 39* | 20 | 48* |
| 13. D | 30* | 49* | 23 | 46* | 25* | 39* | 31* | 54* |
| 14. E | 14 | 30* | 29* | 51* | 31* | 43* | 23 | 31* |
| 15. SCRIT Scale 2 | 12 | 31* | 24* | 36* | 12 | 29* | 26* | 40* |
| 16. MAC 2 | 24* | 19 | 03 | 27* | 21 | 33* | 14 | 29* |
| 17. Lorge-Th. NV3 1 | 13 | 25* | 13 | 40* | 17 | 22 | 16 | 26* |
| 18. 2 | 15 | 30* | 17 | 41* | 22 | 33* | 38* | 36* |
| 19. 3 | 17 | 31* | 29* | 45* | 30* | 46* | 57* | 58* |
| 20. Word Learning | 15 | -- | -05 | -- | 15 | -- | 11 | -- |
| 21. Spelling | 28* | -- | 44* | -- | 42* | -- | 57* | -- |
| 22. Shipley Abstraction | 21 | -- | 31* | -- | 33* | -- | 49* | -- |
| 23. Arithmetic Computation | 33* | 25* | 44* | 28* | 35* | 46* | 60* | 46* |
| 24. Eng. Rdg. & Usage | 23 | -- | 42* | -- | 42* | -- | 68* | -- |
| 25. Information Learning | 21 | -- | 32* | -- | 32* | -- | 43* | -- |
| 26. Otis Beta | 10 | -- | 34* | -- | 57* | -- | 38* | -- |
| 27. Grade in School | 27* | 42* | 54* | 42* | 46* | 39* | 72* | 78* |
| 28. Eng. (Dan.) Vocab. Oral | 13 | 23 | 35* | 40* | 43* | 66* | 47* | 49* |
| 29. Eng. Vocab. Written | 13 | -- | 33* | -- | 43* | -- | 52* | -- |
| 30. Arithmetic Problems | 05 | 25* | 32* | 38* | 35* | 58* | 53* | 62* |
| 31. GNVTB 4 Spatial | -- | 23 | -- | 41* | -- | 42* | -- | 35* |
| 32. 2 Similarities | -- | 28* | -- | 34* | -- | 26* | -- | 30* |
| 33. 3 Differences | -- | 30* | -- | 40* | -- | 31* | -- | 41* |
| 34. 5 Matrices | -- | 30* | -- | 44* | -- | 44* | -- | 42* |
| 35. 6 Series | -- | 28* | -- | 42* | -- | 36* | -- | 41* |
| 36. Illusions T | -04 | 04 | 07 | 10 | 12 | 03 | -06 | -02 |
| 37. L | 15 | 07 | 16 | -07 | -24* | 13 | 01 | 03 |
| 38. Sander | -11 | 16 | -22 | 08 | -24* | -06 | -08 | -03 |
| 39. M-Lyer | 00 | 03 | 13 | 05 | 02 | 02 | 17 | 14 |

*Significant at .05 level. Decimal points omitted.

Table 5

Point-Biserial Correlations of Ability Tests with Sex. (Male High)

| Tests | Samples | Central Eskimos 11 | 12 | 17 | Nsenga Africans 21 | 22 | 27 | Greenland Eskimos 31 | 32 | 37 | Alberta Whites 41 | 42 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Block Design WISC | -01 | 05 | 01 | 27* | 04 | 16 | -01 | 12 | 26 | -05 | 05 |
| 2. | Emb. Fig. Witkin | -06 | 01 | 03 | 11 | 10 | 28* | -03 | 29* | 44* | 02 | -01 |
| 3. | Emb. Fig. AID 1 | 05 | 07 | 12 | 04 | -03 | 02 | -04 | 09 | 25 | 12 | -18 |
| 4. | 2 | 16 | 03 | 10 | -05 | -04 | 13 | -01 | 20 | 38* | 03 | -14 |
| 5. | Emb. Fig. Vernon | -04 | -08 | | 16 | 08 | | -06 | 06 | | -16 | -24 |
| 6. | Form Assembly NGPS | 18 | 06 | 13 | 02 | -13 | 11 | 09 | 26* | 21 | 08 | -06 |
| 7. | Passalong NGPS | -08 | -23 | 25 | 12 | -04 | 00 | -07 | 17 | 31* | -15 | 11 |
| 8. | Design Construction NGPS | | | | 10 | | | 00 | | | -07 | |
| 9. | Draw Man Witkin | -11 | 00 | | 31* | 08 | | -19 | 10 | | -20 | -24 |
| 10. | Progress. Matrices A | -01 | -05 | 04 | 10 | 14 | 16 | 08 | 06 | 35* | -03 | 10 |
| 11. | B | 05 | -22 | -12 | 20 | 13 | 19 | -08 | 06 | -07 | -05 | 06 |
| 12. | C | 13 | -17 | 05 | 08 | 07 | 12 | -01 | 08 | 42* | 10 | 07 |
| 13. | D | -25* | -33* | 02 | 10 | -15 | 00 | -02 | -02 | 09 | -15 | -06 |
| 14. | E | -09 | -11 | 18 | 08 | -14 | -21 | -01 | 05 | 17 | -20 | -12 |
| 15. | SCRIT Scale 2 | -03 | -18 | | -05 | -20 | | -15 | -08 | | -22 | -25* |
| 16. | MAC 2 | -04 | -11 | -15 | -07 | -04 | 02 | -15 | -18 | 34* | -19 | -22 |
| 17. | Porteous Mazes | 30* | | | 27* | | | 24* | | | -02 | |
| 18. | Lorge-Th. NV3 1 | | -04 | | | -15 | | | -09 | | -15 | -08 |
| 19. | 2 | | -10 | | | -25* | | | 00 | | -18 | -23 |
| 20. | 3 | | -19 | | | -18 | | | 02 | | -24* | -19 |
| 21. | Memory Designs Benton | -14 | 11 | | 23 | | | 04 | 34* | | 15 | -16 |
| 22. | Shipley Abstraction | -12 | -22 | | -13 | -19 | | | | | -23 | -24 |
| 23. | Eng. (Dan.) Vocab. Oral. | 10 | -14 | 10 | 00 | -02 | 23 | 26* | 12 | 14 | 06 | 27* |
| 24. | Arithmetic Computation | 06 | -21 | | -05 | -09 | | 05 | -13 | | -16 | -29* |
| 25. | Problems | 06 | -03 | | 03 | 06 | | -06 | 03 | | 03 | -06 |
| 26. | Grade in School | 02 | -30* | 02 | -05 | -08 | 18 | -06 | 12 | 32* | -15 | 0 |
| 27. | Eng. Rdg. & Usage | | -32* | | | -17 | | | | | -27* | -16 |
| 28. | Eng. Vocab. Written | | -26* | | | -19 | | | | | | -05 |
| 29. | Otis Beta | | -19 | | | -02 | | | | | | -20 |
| 30. | Spelling | | -33* | | | -08 | | | | | -23 | -17 |
| 31. | Information Learning | | -28* | | | -03 | | | | | | -25* |
| 32. | Word Learning | -05 | -19 | | -12 | -20 | | | | | -17 | -27* |
| 33. | Illusions M-Lyer | -07 | -19 | 13 | 25* | -03 | 18 | -01 | -05 | 10 | 00 | 11 |
| 34. | Sander | -02 | 05 | 27* | 22 | -06 | -02 | 12 | -05 | 15 | 14 | 28* |
| 35. | T | 29* | 01 | 16 | -06 | 18 | -09 | -01 | 28* | 37* | 11 | 06 |
| 36. | L | 09 | 20 | 00 | -03 | 04 | 03 | 03 | 20 | 29* | 12 | -01 |
| 37. | Visual Acuity | 10 | -08 | 24 | -13 | -12 | -12 | 10 | 22 | -13 | 05 | 13 |

* Significant at .05 level. Decimal points omitted.

Blanks indicate test not given to that sample.

Sample 17 is Samples 13 and 14 combined.

Table 6

Point-Biserial Correlations of Status and Process Variables with Sex (Male High).

| Variables / Samples | Central Eskimos 11 | 12 | 17 | Nsenga Africans 21 | 22 | 27 | Greenland Eskimos 31 | 32 | 37 | Alberta Whites 41 | 42 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Status** | | | | | | | | | | | |
| 1. Wages vs. Land (Head) | 08 | -18 | -02 | -14 | -01 | -06 | -05 | -10 | 01 | | |
| 2. Appliance Ownership (Home) | 18 | -10 | -15 | -06 | -11 | 09 | -10 | -16 | 02 | -02 | 00 |
| 3. Time in School | 11 | -21 | 02 | -02 | 05 | 18 | -21 | 19 | 32* | -02 | 02 |
| 4. Occupation Plans (Blishen) | 05 | -34* | 13 | -03 | 09 | | -05 | -07 | 15 | -27* | -23 |
| 5. Eng. (Dan.) Use-Parents | 04 | -12 | 09 | 01 | 28* | 18 | 12 | -14 | 00 | 13 | 09 |
| 6. - Siblings | -04 | -22 | 02 | -03 | 02 | 21 | 21 | -08 | 00 | 13 | 05 |
| 7. - Friends | -07 | -25* | -07 | 13 | 03 | 24 | -01 | -06 | 08 | 13 | 07 |
| 8. Occupation Head (Blishen) | 08 | -20 | -06 | -13 | -26* | 06 | 04 | -04 | 06 | -03 | -07 |
| 9. Education Father | 19 | -11 | -18 | -17 | -25* | 01 | -05 | 15 | 16 | 05 | -04 |
| 10. Education Mother | 08 | 00 | 14 | -06 | -34* | -06 | 04 | -19 | 16 | 00 | 01 |
| 11. Type of House | 05 | -24 | -06 | 14 | -20 | -11 | 03 | -14 | -09 | -05 | -04 |
| 12. Persons per Room | -16 | 21 | 08 | 30* | 21 | -02 | 08 | 00 | 08 | -15 | 30* |
| **Process** | | | | | | | | | | | |
| 13. Initiative in Direct Exp. | 14 | 08 | 37* | -08 | -10 | 07 | 38* | 56* | 16 | 03 | 07 |
| 14. Outdoor Activities | 21 | 35* | 55* | -06 | 20 | 13 | 62* | 76* | 31* | -06 | 05 |
| 15. Toys & Hobbies | 15 | -09 | | 26* | 02 | | 29* | 54* | | -19 | 04 |
| 16. Separation from Family | 07 | 17 | 37* | -20 | 01 | -05 | 43* | 48* | 25 | 19 | |
| 17. Materials for School Lrng. | -07 | -29* | | 08 | -04 | | -02 | 12 | | -25* | -01 |
| 18. Use of Books | -09 | -29* | 05 | 09 | 00 | 09 | 12 | 01 | -13 | -10 | -19 |
| 19. Use of Radio (or T.V.) | -03 | -19 | 06 | 08 | 02 | 05 | 16 | 12 | -04 | 01 | -06 |
| 20. Sum. Opp. Vicar. Exp. | 04 | -18 | 16 | 20 | 03 | 04 | 55* | 59* | 30* | 01 | -04 |
| 21. Planning vs. Impulse | 07 | -01 | 09 | 00 | -19 | 20 | -07 | 21 | 05 | -39* | -26* |
| 22. Sum. Goals & Purpose | 19 | -15 | 35* | -09 | 14 | 12 | 12 | 19 | 02 | -14 | -01 |
| 23. Schl. Achieve. Motivation | -09 | -33* | -05 | 03 | -13 | 00 | -03 | -12 | -08 | -13 | -26* |
| 24. Parent Asp. for Ed. | -09 | -14 | | -10 | 01 | | 12 | -04 | | -26* | -06 |

* Significant at .05 level. Decimal points omitted.

Blanks indicate item not given for that sample.

Table 4

Inter-Marital Correlations of Status and Personal Variables with Sex Finals Dialog.

| Sample | Control Subjects | | | Dementia Alzheimer | | | Alcohol Dependence | | | Alcohol Withdrawal | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | 17 | 17 | 24 | 23 | 23 | 31 | 32 | 32 | 41 | 42 |
| Age (in years) | -08 | -18 | -03 | -14 | -01 | -04 | -03 | -10 | 01 | -02 | 00 |
| Socio-economic Status (Home) | 14 | -10 | -15 | -06 | -12 | 03 | -10 | -16 | 02 | -02 | 02 |
| Education | 11 | -21 | 02 | -02 | 03 | 18 | -21 | 19 | 12* | -27* | -23 |
| Mean Final (Dialogen) | 05 | -34* | 13 | -04 | 03 | | -03 | -07 | 15 | | |
| Dialog. Interventions | 04 | -12 | 08 | 01 | 28* | 18 | 12 | -14 | 00 | 13 | 09 |
| - Siblings | -04 | -22 | 02 | -03 | 02 | 21 | 21 | -08 | 00 | 15 | 03 |
| - Friends | -07 | -35* | -07 | 15 | 08 | 24 | -01 | -06 | 08 | 13 | 07 |
| Mean Final (Dialogen) | -08 | -20 | -06 | -15 | -28* | 06 | 04 | -04 | 06 | -01 | -07 |
| Dialog. Rules | 18 | -11 | -18 | -17 | -22* | 01 | -03 | 13 | 16 | 25 | -04 |
| Dialog. Affect | 08 | 00 | 14 | -06 | -24* | -02 | 04 | -12 | 10 | 08 | 02 |
| Dialog. Conflict | 05 | -24 | -08 | 14 | -20 | -11 | -03 | -14 | -09 | -03 | -04 |
| Dialog. Abuse | -16 | 23 | 08 | 30* | 21 | -02 | 05 | 00 | 08 | -13 | 30* |
| Dialog. Loss - to Direct Exp. | 14 | 08 | 27* | -08 | -10 | 02 | 16* | 24* | 16 | 02 | 07 |
| Dialog. Divisiveness | 21 | 13* | 05* | -06 | 30 | 13 | 52* | 72* | 31* | -86 | 05 |
| Dialog. Cohesion | 15 | -09 | | 24* | 02 | | 29* | 44* | | -19 | 04 |
| Dialog. Loss from Family | 07 | 17 | 27* | -20 | 01 | -05 | 038 | 40* | 23 | 19 | |
| Dialog. Loss for School Lang. | -07 | -29* | | | 08 | -04 | | -02 | 12 | | -22* -01 |
| Dialog. Abuse | -09 | -29* | 05 | 09 | 00 | 09 | 12 | 01 | -13 | -10 | -13 |
| Dialog. Conflicts (or T.V.) | -03 | -15 | 06 | 08 | 02 | 05 | 18 | 12 | -04 | 01 | -06 |
| Dialog. Vitaes. Map. | 04 | -18 | 16 | 20 | 03 | 04 | 52* | 39* | 30* | 01 | -04 |
| Dialog. Dominance | 07 | -01 | 09 | 08 | -19 | 20 | -07 | 11 | 03 | -30* | -28* |
| Dialog. Purposes | 19 | -15 | 32* | -05 | 14 | 12 | 12 | 15 | 03 | -14 | -01 |
| Dialog. Relative. Motivation | -07 | -32* | -07 | 03 | -13 | 00 | -03 | -12 | -08 | -13 | -26* |
| Dialog. for TL. | -09 | -14 | | -10 | 02 | | 14 | -04 | | -32* | -06 |

Significant at .05 level. Decimal points omitted.

Items in Dialogen Item not given for list length.

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| JUL 14 '86 | | | |
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AUTHOR

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TITLE Inuit, Nsenga, Canadian whites

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